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## RAW SEQUENCE LISTING

DATE: 08/04/2004

PATENT APPLICATION: US/10/702,228A

TIME: 09:22:16

Input Set : A:\341030US1.txt

Output Set: N:\CRF4\08042004\J702228A.raw

4 <110> APPLICANT: Slater, Michael R.  
 5 Wood, Keith V.  
 6 Hartnett, James Robert  
 7 Promega Corporation  
 9 <120> TITLE OF INVENTION: Vectors for Directional Cloning  
 12 <130> FILE REFERENCE: 341.030US1  
 14 <140> CURRENT APPLICATION NUMBER: 10/702,228A  
 15 <141> CURRENT FILING DATE: 2003-11-05  
 17 <150> PRIOR APPLICATION NUMBER: 10/678,961  
 18 <151> PRIOR FILING DATE: 2003-10-03  
 20 <160> NUMBER OF SEQ ID NOS: 92  
 22 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
 24 <210> SEQ ID NO: 1  
 25 <211> LENGTH: 18  
 26 <212> TYPE: DNA  
 27 <213> ORGANISM: Artificial Sequence  
 29 <220> FEATURE:  
 30 <223> OTHER INFORMATION: A synthetic DNA fragment  
 32 <220> FEATURE:  
 33 <221> NAME/KEY: misc\_feature  
 34 <222> LOCATION: 18  
 35 <223> OTHER INFORMATION: n = A, T, G, or C  
 37 <400> SEQUENCE: 1

W--&gt; 38 aaggagcgat cgccatgn

18

40 <210> SEQ ID NO: 2  
 41 <211> LENGTH: 10  
 42 <212> TYPE: DNA  
 43 <213> ORGANISM: Artificial Sequence  
 45 <220> FEATURE:  
 46 <223> OTHER INFORMATION: A synthetic DNA fragment, wherein nnn is the first codon  
 which is 3'

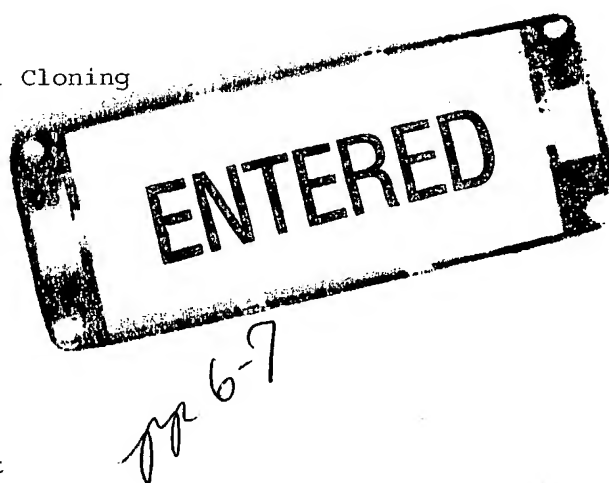
47 to the start codon followed by the remainder of an open reading frame

49 <220> FEATURE:  
 50 <221> NAME/KEY: misc\_feature  
 51 <222> LOCATION: 8-10  
 52 <223> OTHER INFORMATION: n = A, T, G, or C  
 54 <400> SEQUENCE: 2

W--&gt; 55 cgccatgnnn

10

65 <210> SEQ ID NO: 3  
 66 <211> LENGTH: 12  
 67 <212> TYPE: DNA  
 68 <213> ORGANISM: Artificial Sequence  
 71 <220> FEATURE:  
 72 <223> OTHER INFORMATION: A synthetic DNA fragment



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```

74 <220> FEATURE:
75 <221> NAME/KEY: misc_feature
76 <222> LOCATION: 1-6
77 <223> OTHER INFORMATION: n = A, T, G, or C
79 <400> SEQUENCE: 3
W--> 80 nnnnnngtct tc 12
82 <210> SEQ ID NO: 4
83 <211> LENGTH: 10
84 <212> TYPE: DNA
85 <213> ORGANISM: Artificial Sequence
87 <220> FEATURE:
88 <223> OTHER INFORMATION: A synthetic DNA fragment
90 <220> FEATURE:
91 <221> NAME/KEY: misc_feature
92 <222> LOCATION: 1-4
93 <223> OTHER INFORMATION: n = A, T, G, or C
95 <400> SEQUENCE: 4
W--> 96 nnnngaagag 10
98 <210> SEQ ID NO: 5
99 <211> LENGTH: 13
100 <212> TYPE: DNA
101 <213> ORGANISM: Artificial Sequence
103 <220> FEATURE:
104 <223> OTHER INFORMATION: A synthetic DNA fragment
106 <220> FEATURE:
107 <221> NAME/KEY: misc_feature
108 <222> LOCATION: 6-13
109 <223> OTHER INFORMATION: n = A, T, C, or G
111 <400> SEQUENCE: 5
W--> 112 gcagcnnnnn nnn 13
114 <210> SEQ ID NO: 6
115 <211> LENGTH: 11
116 <212> TYPE: DNA
117 <213> ORGANISM: Artificial Sequence
119 <220> FEATURE:
120 <223> OTHER INFORMATION: A synthetic DNA fragment
122 <220> FEATURE:
123 <221> NAME/KEY: misc_feature
124 <222> LOCATION: 1-5
125 <223> OTHER INFORMATION: n = A, T, G or C
127 <400> SEQUENCE: 6
W--> 128 nnnnngagac g 11
131 <210> SEQ ID NO: 7
132 <211> LENGTH: 11
133 <212> TYPE: DNA
134 <213> ORGANISM: Artificial Sequence
136 <220> FEATURE:
137 <223> OTHER INFORMATION: A synthetic DNA fragment
139 <220> FEATURE:

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140 <221> NAME/KEY: misc_feature
141 <222> LOCATION: 4-8
142 <223> OTHER INFORMATION: n = A, T, C, or G
144 <400> SEQUENCE: 7
W--> 145 gccnnnnngg c 11
147 <210> SEQ ID NO: 8
148 <211> LENGTH: 14
149 <212> TYPE: DNA
150 <213> ORGANISM: Artificial Sequence
152 <220> FEATURE:
153 <223> OTHER INFORMATION: A synthetic DNA fragment
155 <220> FEATURE:
156 <221> NAME/KEY: misc_feature
157 <222> LOCATION: 6-14
158 <223> OTHER INFORMATION: n = A, T, G, or C
160 <400> SEQUENCE: 8
W--> 161 ggatgnnnnnn nnnn 14
163 <210> SEQ ID NO: 9
164 <211> LENGTH: 11
165 <212> TYPE: DNA
166 <213> ORGANISM: Artificial Sequence
168 <220> FEATURE:
169 <223> OTHER INFORMATION: A synthetic DNA fragment
171 <220> FEATURE:
172 <221> NAME/KEY: misc_feature
173 <222> LOCATION: 1-5
174 <223> OTHER INFORMATION: n = A, T, G or C
176 <400> SEQUENCE: 9
W--> 177 nnnnngagac c 11
179 <210> SEQ ID NO: 10
180 <211> LENGTH: 10
181 <212> TYPE: DNA
182 <213> ORGANISM: Artificial Sequence
184 <220> FEATURE:
185 <223> OTHER INFORMATION: A synthetic DNA fragment
189 <220> FEATURE:
190 <221> NAME/KEY: misc_feature
191 <222> LOCATION: 6-10
192 <223> OTHER INFORMATION: N = A, T, G, or C
195 <400> SEQUENCE: 10
W--> 196 gacgcnnnnn 10
198 <210> SEQ ID NO: 11
199 <211> LENGTH: 11
200 <212> TYPE: DNA
201 <213> ORGANISM: Artificial Sequence
203 <220> FEATURE:
204 <223> OTHER INFORMATION: A synthetic DNA fragment
206 <220> FEATURE:
207 <221> NAME/KEY: misc_feature

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208 <222> LOCATION: 3-9
209 <223> OTHER INFORMATION: n = A, T, G, or C
211 <400> SEQUENCE: 11
W--> 212 ccnnnnnnng g 11
214 <210> SEQ ID NO: 12
215 <211> LENGTH: 11
216 <212> TYPE: DNA
217 <213> ORGANISM: Artificial Sequence
219 <220> FEATURE:
220 <223> OTHER INFORMATION: A synthetic DNA fragment
222 <220> FEATURE:
223 <221> NAME/KEY: misc_feature
224 <222> LOCATION: 3-9
225 <223> OTHER INFORMATION: n = A, T, G, or C
227 <400> SEQUENCE: 12
W--> 228 gcnnnnnnng c 11
230 <210> SEQ ID NO: 13
231 <211> LENGTH: 10
232 <212> TYPE: DNA
233 <213> ORGANISM: Artificial Sequence
235 <220> FEATURE:
236 <223> OTHER INFORMATION: A synthetic DNA fragment
238 <220> FEATURE:
239 <221> NAME/KEY: misc_feature
240 <222> LOCATION: 1-5
241 <223> OTHER INFORMATION: n = A, T, C, or G
243 <400> SEQUENCE: 13
W--> 244 nnnnnngagac 10
246 <210> SEQ ID NO: 14
247 <211> LENGTH: 11
248 <212> TYPE: DNA
249 <213> ORGANISM: Artificial Sequence
251 <220> FEATURE:
252 <223> OTHER INFORMATION: A synthetic DNA fragment
254 <220> FEATURE:
255 <221> NAME/KEY: misc_feature
256 <222> LOCATION: 4-8
257 <223> OTHER INFORMATION: n = A, T, G, or C
259 <400> SEQUENCE: 14
W--> 260 ccannnnntg g 11
262 <210> SEQ ID NO: 15
263 <211> LENGTH: 15
264 <212> TYPE: DNA
265 <213> ORGANISM: Artificial Sequence
267 <220> FEATURE:
268 <223> OTHER INFORMATION: A synthetic DNA fragment
270 <220> FEATURE:
271 <221> NAME/KEY: misc_feature
272 <222> LOCATION: 6-15

```

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273 <223> OTHER INFORMATION: n = A, T, G, or C
275 <400> SEQUENCE: 15
W--> 276 gtcccnnnnnn nnnnn 15
278 <210> SEQ ID NO: 16
279 <211> LENGTH: 11
280 <212> TYPE: DNA
281 <213> ORGANISM: Artificial Sequence
283 <220> FEATURE:
284 <223> OTHER INFORMATION: A synthetic DNA fragment
286 <220> FEATURE:
287 <221> NAME/KEY: misc_feature
288 <222> LOCATION: 1-4
289 <223> OTHER INFORMATION: n = A, T, G, or C
291 <400> SEQUENCE: 16
W--> 292 nnnngaagag c 11
294 <210> SEQ ID NO: 17
295 <211> LENGTH: 14
296 <212> TYPE: DNA
297 <213> ORGANISM: Artificial Sequence
299 <220> FEATURE:
300 <223> OTHER INFORMATION: A synthetic DNA fragment
302 <220> FEATURE:
303 <221> NAME/KEY: misc_feature
304 <222> LOCATION: 1-8
305 <223> OTHER INFORMATION: n = A, T, G, or C
307 <400> SEQUENCE: 17
W--> 308 nnnnnnnnngc aggt 14
313 <210> SEQ ID NO: 18
314 <211> LENGTH: 14
315 <212> TYPE: DNA
316 <213> ORGANISM: Artificial Sequence
319 <220> FEATURE:
320 <223> OTHER INFORMATION: A synthetic DNA fragment
322 <220> FEATURE:
323 <221> NAME/KEY: misc_feature
324 <222> LOCATION: 1-9
325 <223> OTHER INFORMATION: n = A, T, G, or C
327 <400> SEQUENCE: 18
W--> 328 nnnnnnnnnng atgc 14
330 <210> SEQ ID NO: 19
331 <211> LENGTH: 12
332 <212> TYPE: DNA
333 <213> ORGANISM: Artificial Sequence
335 <220> FEATURE:
336 <223> OTHER INFORMATION: A synthetic DNA fragment
338 <220> FEATURE:
339 <221> NAME/KEY: misc_feature
340 <222> LOCATION: 4-9
341 <223> OTHER INFORMATION: n = A, T, G, or C

```

RAW SEQUENCE LISTING ERROR SUMMARY  
 PATENT APPLICATION: US/10/702,228A

DATE: 08/04/2004  
 TIME: 09:22:17

Input Set : A:\341030US1.txt  
 Output Set: N:\CRF4\08042004\J702228A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 18  
 Seq#:2; N Pos. ~~8,9,10~~  
 Seq#:3; N Pos. ~~1,2,3,4,5,6~~  
 Seq#:4; N Pos. ~~1,2,3,4~~  
 Seq#:5; N Pos. ~~6,7,8,9,10,11,12,13~~  
 Seq#:6; N Pos. ~~1,2,3,4,5~~  
 Seq#:7; N Pos. ~~4,5,6,7,8~~  
 Seq#:8; N Pos. ~~6,7,8,9,10,11,12,13,14~~  
 Seq#:9; N Pos. ~~1,2,3,4,5~~  
 Seq#:10; N Pos. ~~6,7,8,9,10~~  
 Seq#:11; N Pos. ~~3,4,5,6,7,8,9~~  
 Seq#:12; N Pos. ~~3,4,5,6,7,8,9~~  
 Seq#:13; N Pos. ~~1,2,3,4,5~~  
 Seq#:14; N Pos. ~~4,5,6,7,8~~  
 Seq#:15; N Pos. ~~6,7,8,9,10,11,12,13,14,15~~  
 Seq#:16; N Pos. ~~1,2,3,4~~  
 Seq#:17; N Pos. ~~1,2,3,4,5,6,7,8~~  
 Seq#:18; N Pos. ~~1,2,3,4,5,6,7,8,9~~  
 Seq#:19; N Pos. ~~4,5,6,7,8,9~~  
 Seq#:20; N Pos. 5,6,7,8,9  
 Seq#:21; N Pos. 1,2,3,4,5  
 Seq#:22; N Pos. 7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22  
 Seq#:23; N Pos. 4,5,6,7  
 Seq#:40; N Pos. 4,5,6,7  
 Seq#:54; N Pos. 4,5,6,7  
 Seq#:55; N Pos. 4,5,6,7  
 Seq#:69; N Pos. 14  
 Seq#:70; N Pos. 1,2,3  
 Seq#:71; N Pos. 1,2,3  
 Seq#:72; N Pos. 1,2,3,8,9,10,11,12  
 Seq#:73; N Pos. 6,7,8,9,10,11,12,13,14,15,16,17,18  
 Seq#:74; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13  
 Seq#:75; N Pos. 8,9,10,11,12,13,14,15  
 Seq#:76; N Pos. 8,9,10,11  
 Seq#:77; N Pos. 5,6,7,8,9  
 Seq#:78; N Pos. 8,9,10,11  
 Seq#:79; N Pos. 3,4,5,6,7,8,9  
 Seq#:80; N Pos. 5,6,7,8,9  
 Seq#:81; N Pos. 4,5,6,7,8  
 Seq#:82; N Pos. 7,8,9,10,11,12,13,14,15,16,17,18  
 Seq#:83; N Pos. 1  
 Seq#:84; N Pos. 1  
 Seq#:86; N Pos. 1,2,3,12  
 Seq#:87; N Pos. 1,2,3,11

**RAW SEQUENCE LISTING ERROR SUMMARY**  
**PATENT APPLICATION: US/10/702,228A**

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Input Set : A:\341030US1.txt  
Output Set: N:\CRF4\08042004\J702228A.raw

Seq#:88; N Pos. 1,2,3,11

Seq#:89; N Pos. 1

Seq#:91; N Pos. 1,2,3,12

Seq#:92; N Pos. 7,8,9,10

## VERIFICATION SUMMARY

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Input Set : A:\341030US1.txt

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L:38 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0  
L:55 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0  
L:80 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0  
L:96 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0  
L:112 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0  
L:128 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:0  
L:145 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:0  
L:161 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:0  
L:177 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:0  
L:196 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:0  
L:212 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:0  
L:228 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:0  
L:244 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:0  
L:260 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:0  
L:276 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:0  
L:292 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16 after pos.:0  
L:308 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 after pos.:0  
L:328 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:0  
L:344 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:0  
L:360 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:0  
L:376 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:0  
L:392 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22 after pos.:0  
L:408 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:0  
L:625 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40 after pos.:0  
L:802 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54 after pos.:0  
L:819 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55 after pos.:0  
L:997 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:69 after pos.:0  
L:1015 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:70 after pos.:0  
L:1032 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:71 after pos.:0  
L:1060 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:72 after pos.:0  
L:1077 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:73 after pos.:0  
L:1093 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:74 after pos.:0  
L:1109 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:75 after pos.:0  
L:1126 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:76 after pos.:0  
L:1142 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:77 after pos.:0  
L:1158 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:78 after pos.:0  
L:1174 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:79 after pos.:0  
L:1192 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:80 after pos.:0  
L:1208 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:81 after pos.:0  
L:1224 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:82 after pos.:0  
L:1241 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:83 after pos.:0  
L:1258 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:84 after pos.:0  
L:1286 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:86 after pos.:0  
L:1303 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:87 after pos.:0  
L:1319 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:88 after pos.:0  
L:1335 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:89 after pos.:0  
L:1363 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:91 after pos.:0  
L:1379 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:92 after pos.:0